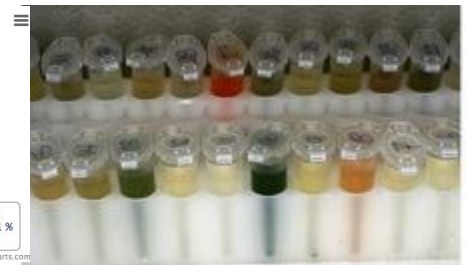
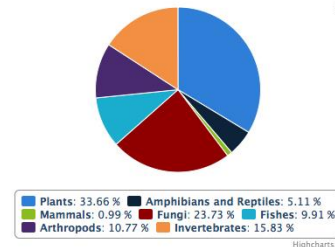
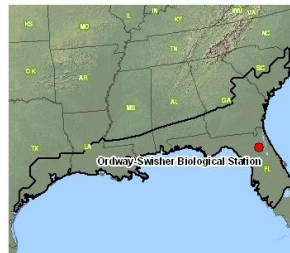
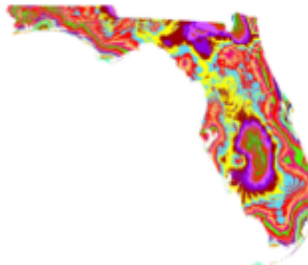


# iDigBio Research Coordination and Scientific Community Outreach

Pamela S. Soltis

iDigBio Co-PI and Director for Research  
Curator of Molecular Systematics & Evolutionary Genetics  
and Genetic Resources Repository



*This material is based upon work supported by the National Science Foundation under Cooperative Agreement EF-1115210. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.*

# Components of iDigBio:

*Digitization of Biodiversity Collections*

*Interactive, Integrative, Innovative*

- Research

- *Access to specimen data: Provide **portal access** to biodiversity data in a cloud-computing environment*
- *Develop a **computational environment** to facilitate specimen-based integrative biodiversity research*
- *Develop **research use cases and workflows** to anticipate computational needs and linkages*

# The iDigBio Data Portal

[Home](#)[Collections](#)[Specimen Records](#)[Media Records](#)[Tutorial](#)[Feedback](#)[Login](#)

## Start Searching Specimen Records

Press ESC to close auto-complete suggestions. If no auto-completions match your desired search, close auto-complete and try it anyway. You may still get results from the full-text search of the records.

## Welcome to the iDigBio Data Portal

If you're already familiar with our portal's interface, go in and start searching [Specimen Records](#) or [Media Records](#).

If this is your first time here, you might consider browsing [our tutorial](#).

80

Collections

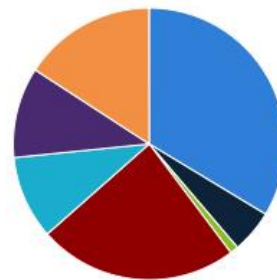
3,270,330

Specimen Records

391,312

Media Records

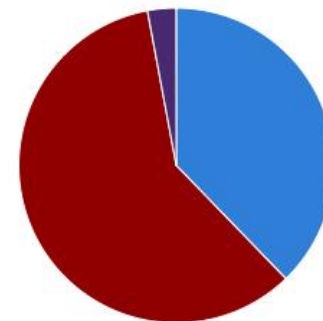
Specimen Records by Collection Type



Plants: 33.66 % Amphibians and Reptiles: 5.11 %  
Mammals: 0.99 % Fungi: 23.73 % Fishes: 9.91 %  
Arthropods: 10.77 % Invertebrates: 15.83 %

Highcharts.com

Media Records by Collection Type



Plants: 37.77 % Fungi: 59.29 % Arthropods: 2.94 %

Highcharts.com



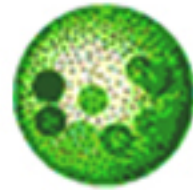
# Linking Collections to...

- Ecology
- Paleontology
- Genomics
- Living Collections
- Other Repositories

neon  
National Ecological Observatory Network, Inc.  
Paleobiology Database

Quick search

Raphitoma, Dufong, Eulytoceras, Diptera, Mammals, etc.



UTEX

Welcome to Morphbank  
User: Guest [\[click to login\]](#)

TreeBASE  
A Database of Phylogenetic Knowledge

NCBI  
About NCBI  
National Center for Biotechnology Information

About NCBI	NCBI at a Glance	A Science Primer	Databases and Tools
Human Genome Resources	Model Organisms Guide	Outreach and Education	News

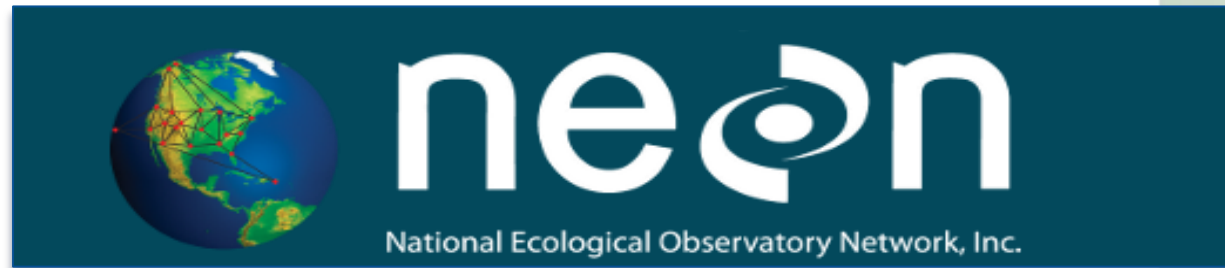
About NCBI Site Map  
NCBI News  
NCBI 20th Anniversary  
GenBank 25th Anniversary  
Subscribe to NCBI-Announce

NCBI at a Glance  
A Science Primer  
Databases and Tools  
Human Genome Resources  
Model Organisms Guide  
Outreach and Education  
News



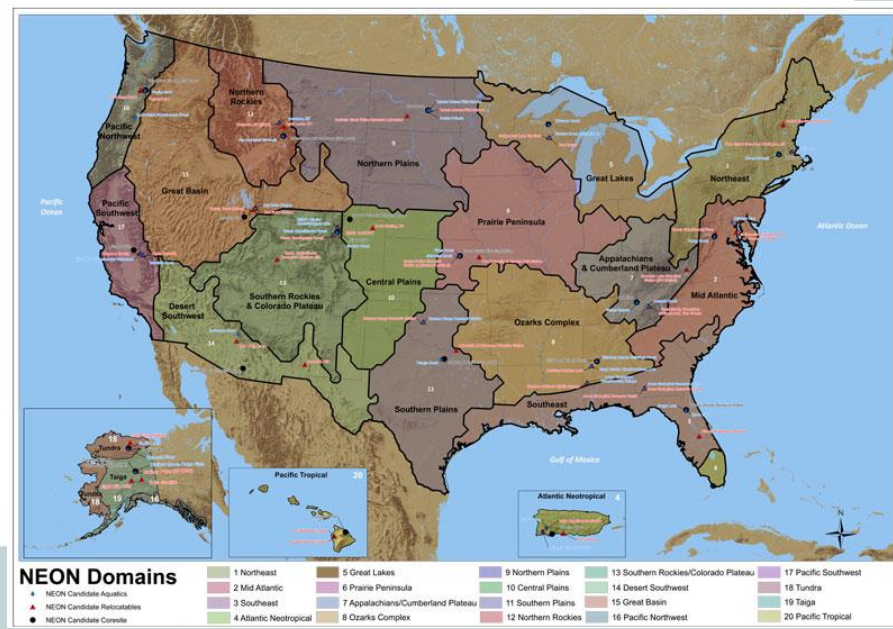
# Linking Collections to Ecology

- Through NEON



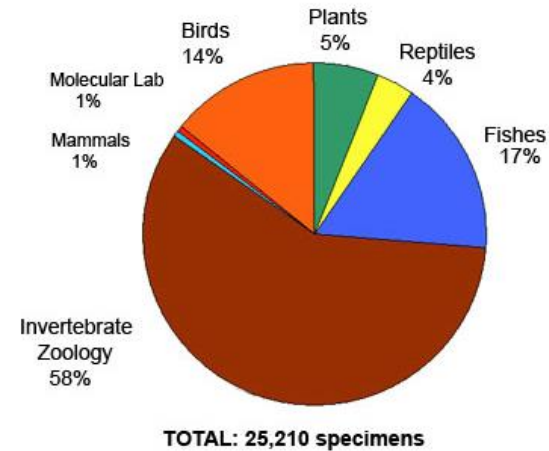
## National Ecological Observatory Network

- Biological monitoring at sites across USA; collections
- Baseline for changes in species distribution and abundance over time
- Office of Scientific Research Collections – what? where?



# Linking Collections to Genomics

- National network of tissue and genetic resources



**FLMNH GRR: the Genetic Resources Repository**  
**Florida Museum of Natural History**



# Linking Collections to Genomics

- Participated in NSF-sponsored workshop on DNA banks at Missouri Botanical Garden, Jan. 2013
- Assembled a file of national DNA and tissue banks
- Developed a common web portal to these collections
- DNA resources ultimately connected to specimen data in iDigBio



# Index to DNA Banks in US



Portal Search

Home About Collaborators Education Resources News Research Digitization

Log In | Sign Up

## DNA Banks and Genetic Resource Repositories in the United States

iDigBio is actively compiling a list of DNA banking facilities and genetic resource repositories in the United States that maintain collections of nucleic acid extracts (DNA or RNA) or preserved tissues suitable for genetic and genomic studies of biodiversity.

The following resources (listed alphabetically by institution) represent collections currently known by or reported to iDigBio. Each entry includes the name of the institution, the date listed on iDigBio, a brief description, an institutional link, and searchable keywords: e.g., fields of study; repository type; storage type (cryogenic, ultra-cold, etc.); and resources available (nucleic acid extracts, frozen tissues, silica-dried tissues, etc.).

To report the availability of genetic resources at your institution, or to revise or update an existing entry, please contact Grant Godden.

iDigBio thanks the participants of the DNA Banking Workshop hosted by the Missouri Botanical Garden (January 2013) and Breda Zimkus (Museum of Comparative Zoology, Harvard University), in particular, for assistance in compiling these resources.

	Abstract	URL
<a href="#">Academy of Natural Sciences</a>	The Laboratory for Molecular Systematics and	<a href="http://www.ansp.org/research/systematics-evolution/resources/molecular-biology/facilities/">http://www.ansp.org/research/systematics-evolution/resources/molecular-biology/facilities/</a>

Google™ Custo

Search

×

«

April

»

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	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

### My Top Resources

- [Contact Us](#)
- [Digitization Documentation](#)
- [iDigBio Forums](#)
- [iDigBio Resources](#)
- [iDigBio Specimen Portal](#)
- [iDigBio Wiki](#)

### Upcoming Events

Grant Godden & Kevin Love





# Linking Collections to Genomics

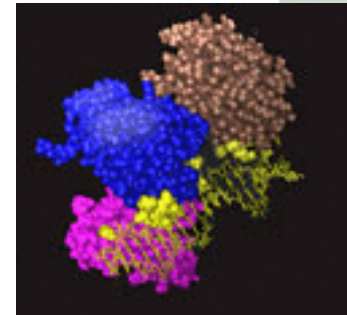
- Link to vouchers in GenBank

**About NCBI**  
National Center for Biotechnology Information

<a href="#">About NCBI</a>	<a href="#">NCBI at a Glance</a>	<a href="#">A Science Primer</a>	<a href="#">Databases and Tools</a>
<a href="#">Human Genome Resources</a>	<a href="#">Model Organisms Guide</a>	<a href="#">Outreach and Education</a>	<a href="#">News</a>

NCBI at a Glance  
A Science Primer  
Databases and Tools  
Human Genome Resources  
Model Organisms Guide  
Outreach and Education  
News

- Literature Databases
- Entrez Databases
- Nucleotide Databases
- Genome-Specific Resources
- Tools for Data Mining
- Tools for Sequence Analysis
- Tools for 3-D Structure Display and Similarity Searching
- Maps
- Collaborative Cancer Research
- FTP Download Sites
- Resource Statistics



# New Partnerships for Research

- iPlant Collaborative
  - Taxonomic Names Resolution Service
  - Workflows
- AVAToL – Assembling, Visualizing, and Analyzing the Tree of Life
  - Workshop at NSF, May 2013



# Scientific Community Outreach

- **Digitization workshops**

Paleontology Digitization Workshop

Fluid-Preserved Invertebrate Imaging Workshop

Train-the-Trainers Georeferencing Workshop (#2)

Specify 6 Workshop

Augmenting OCR Hackathon Wiki

Wet Collections Digitization Workshop

ASB Workshop

Entomology Digitization Workshop

**Gil Nelson & Deb Paul**

# Scientific Community Outreach

- **Symposia/Participation at national/regional meetings**

TDWG Symposia and Keynote

Natl. Assn. Science Writers

National NEON Conference

Broadening Participation, Botany 2013

Public Participation, Botany 2013

Herbarium Digitization for Research, Teaching, Public, Botany 2013

Society for the Preservation of Natural History Collections (SPNHC): DemoCamp

Society for the Preservation of Natural History Collections

ASB Symposium

AIM-UP! RCN Workshop

DNA Banking Workshop

# Upcoming Workshops & Symposia

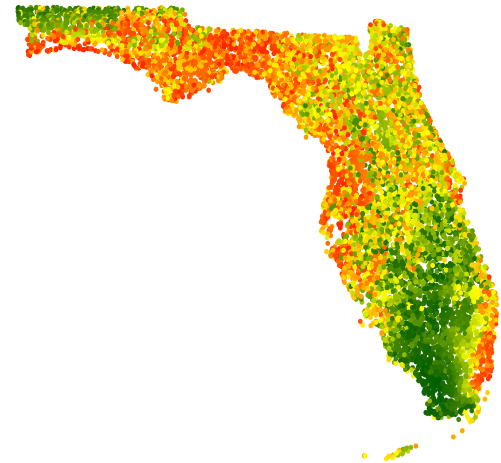
Description	Dates	Location	Participant Support
Small Herbaria Workshop	Dec 10-11, 2013	Tallahassee, FL (FSU)	Yes
Notes from Nature Hackathon	Dec 16-20, 2013	Gainesville, FL (UF)	Yes
Education & Outreach Workshop	Jan 16-17, 2014	Gainesville, FL (UF)	Yes
Broadening Diversity Workshop 1	Feb 1, 2014	Orlando, FL (UCF)	Co-sponsor: Gil's NSF Grant
NAPC Symposium	Feb 15-18, 2014	Gainesville, FL (UF)	Yes
Original Source Materials Workshop	Mar 9-12, 2014	New Haven, CT (Yale)	Yes
Florida Academy of Sciences Meeting	Mar 7-8, 2014	Ft. Pierce, FL	
Digitization Process Workshop	Mar 24-28, 2014	Honolulu, HI (TBD)	Yes
Data Modeling Workshop	Mar 24-25, 2014	Honolulu, HI	Yes
LEEF 2014 Conference	Mar 21-23, 2014	Ocala, FL	
ASB 2013	Apr 2-5, 2014	Spartanburg, SC	Yes (travel for Monfils)
Small Collections Workshop (Monfils)	Apr 7-10, 2014	Michigan (CMU)	Co-sponsor: Collections Web
FLMNH Earth Day	Apr 19, 2014	Gainesville, FL (UF)	
USA Science & Engineering Fair	Apr 25-27, 2014	Washington, D.C.	
Workshop at TORCH 2014	May 2014	TBD	Yes
Natural History Collections Symposium	May 5-6, 2014	Gainesville, FL (UF)	
Specify for Paleo Collections Workshop	May 19-23, 2014	Lawrence, KS (KU)	Yes
Paleo Imaging Workshop	May or Jun 2014	University of Texas	Yes
Botany 2014: DNA Banking	July 2014	Boise, ID	No
Botany 2014: Uses of Biodiversity Data	July 2014	Boise, ID	Yes

# Biodiversity & Digitized Data Seminar



# Research Applications

- Monitoring shifts in biodiversity
- Tracking phenological shifts
- Ecological Niche Modeling
- Integration of ENM with phylogeny
  - Role for tissue/DNA collection
- Tracking invasive species
- Distributions of polyploids vs. diploid progenitors
- Past movements and climate change
- Landscape genetics
  - **COBB & SOLTIS – TODAY, 1:30-3:00**
  - **SOLTIS & BEAMAN – TOMORROW, 11-12:30**




# Research Working Group

- TCNs addressing a range of questions:
  - Climate change:
    - bud-burst and flowering phenology
    - distributions; ecological niche modeling
  - Invasive species
  - Agricultural pests
- Community input on potential research questions
  - Research-oriented discussions with TCNs to identify computational needs to address the questions they posed, assuming data are available
- *What data sources and computational software are needed?*



# The iDigBio Data Portal

Home Collections **Specimen Records** Media Records Tutorial Feedback psoltis

Displaying 1 to 10 of 4155 10 per Page Summary List

Clear Save Load Download as CSV Go To Page#

All Terms carex

Last Ten Searches:

Basic Search Advanced Search

Press ESC to close auto-complete suggestions. If no auto-completions match your desired search, close auto-complete and try it anyway. You may still get results from the full-text search of the records.


Search

[Change Autocomplete Terms](#)

## Top Scientific Name Terms


[aulacomnium palustre](#) [bryum](#) [carex longii](#)

## Carex atlantica




- Institution Code: Florida State University
- Dataset Name:
- Collected By: Robert K. Godfrey
- State/Province:
- Country: UNITED STATES

## Carex striata



- Institution Code: Florida State University
- Dataset Name:
- Collected By: Robert K. Godfrey
- State/Province:
- Country: UNITED STATES

## Carex frankii



- Institution Code: FSU
- Dataset Name:

# The iDigBio Data Portal

## Setophaga cerulea



- Institution Code: TTRS
- Dataset Name:
- Collected By: Stoddard, Sr.
- State/Province:
- Country: U.S.

## Record Images



## Georeference Data



# The iDigBio Data Portal

- New/under construction:
  - Internal operations (reformatted API, etc.)
  - Revised interface
  - Revised search options
  - Revised taxon display
  - Revised mapping functions
  - Links to external sources:
    - GenBank
    - EOL
    - Taxonomic Names Resolution
  - Feedback options
  - TOWARD automated ingestion